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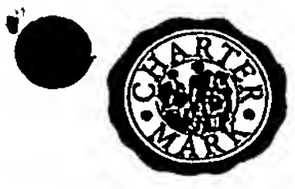

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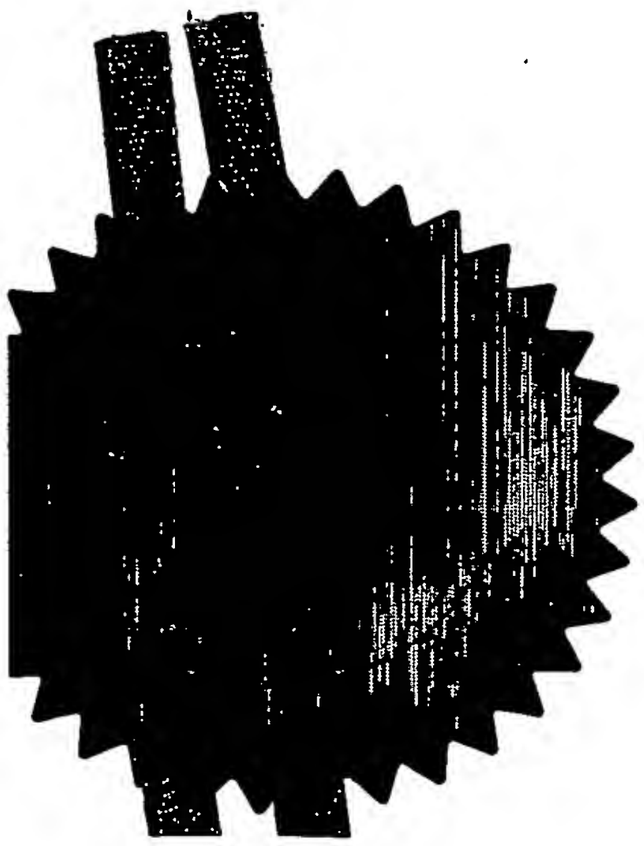

Signed

Dated 14 June 2004

Patents Form 1/77

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02SEP03 E834439-1 D02982
P01/7700 0.00-0320544.0

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

1. Your reference

P676GB

2. Patent application number
(The Patent Office will fill this part in)

0320544.0

0 2 SEP 2003

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

TOSTEVIN, Richard Edmund
La Balise, La Viltole, Torteval, Guernsey, GY8 0PR

Patents ADP number *(if you know it)*

8658080001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

SAILING BOATS

5. Name of your agent *(If you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

STANLEYS

Kings Court
12 King Street
LEEDS
LS1 2HL

Patents ADP number *(if you know it)*

07902190001

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*
GB	03 14441.7	20-JUN-03

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

Number of earlier UK application	Date of filing *(day / month / year)*

8. Is a Patents Form 7/77 (Statement of inventorship and of right to grant of a patent) required in support of this request?

NO

Answer YES if:

a) any applicant named in part 3 is not an inventor, or

b) there is an inventor who is not named as an applicant, or

c) any named applicant is a corporate body.

Otherwise answer NO (See note d)

Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form	
Description	11
Claim(s)	6
Abstract	
Drawing(s)	1

10. If you are also filing any of the following, state how many against each item.

Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent (Patents Form 7/77)	
Request for a preliminary examination and search (Patents Form 9/77)	1
Request for a substantive examination (Patents Form 10/77)	1
Any other documents (please specify)	51/77 (x2)

11. I/We request the grant of a patent on the basis of this application.

Signature(s) STANLEYS — 2 September 2003 Date

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom — David Stanley — 01481 824411

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.

b) Write your answers in capital letters using black ink or you may type them.

c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.

d) If you have answered YES in part 8, a Patents Form 7/77 will need to be filed.

e) Once you have filled in the form you must remember to sign and date it.

f) Part 7 should only be completed when a divisional application is being made under section 15(4), or when an application is being made under section 8(3), 12(6) or 37(4) following an entitlement dispute. By completing part 7 you are requesting that this application takes the same filing date as an earlier UK application. If you want the new application to have the same priority date(s) as the earlier UK application, you should also complete part 6 with the priority details.

SAILING BOATS

The present invention relates to sailing boats.

Sailing boats have been known for thousands of years. However, there still remains a need for a sailing boat that is simple to construct and sail, whilst offering excellent performance.

Preferred embodiments of the present invention aim to provide a sailing boat having such characteristics.

According to one aspect of the present invention, there is provided a sailing boat comprising:

a hull;

a mast in the form of a closed loop that extends abeam of the hull;

a tabernacle that mounts the mast directly or indirectly on the hull;

a boom supported on the mast with the boom extending upwardly from a lower, fore position forward of the mast to a higher, aft position aft of the mast; and

a sail depending from the boom for deployment within the closed loop of the mast.

Said hull may be a single hull.

Said loop may be elliptical.

Preferably, said loop is ovoid, with an apex at the top of the mast.

Preferably, the maximum beam of said mast is in the range 60 to 90 percent of its height.

Preferably, the maximum beam of said mast is in the range 65 to 85 percent of its height.

Preferably, the maximum beam of said mast is in the range 70 to 80 percent of its height.

Preferably, the maximum beam of said mast is substantially 75 percent of its height.

Preferably, said mast is formed of at least one closed hollow member.

Preferably, said mast is formed of a single closed hollow member having ends that are connected at the top of the mast.

Said mast may be formed of a plurality of closed hollow members having ends that are connected at the top and the bottom of the mast.

Said tabernacle may connect said ends of said closed hollow members at the bottom of the mast.

Said hollow member may be at least partially filled with foam or other buoyancy-assisting material.

Preferably, said tabernacle affords movement of the mast between an operative position in which it extends abeam of the hull and a stowed position in which it extends more fore and aft of the hull.

Preferably, the mast when in said stowed position extends substantially fore and aft of the hull.

Preferably, said tabernacle affords pivoting movement of the mast between said operative position and said stowed position.

Preferably, said boom is connected to the mast at or adjacent a top centre point of the mast.

A sailing boat according to any of the preceding aspects of the invention preferably includes stays for supporting opposite sides of the mast.

A sailing boat as above preferably includes stay adjustment means for adjusting said stays and thereby the rake of the mast.

Preferably, said boom extends at an angle in the range 35 to 55 degrees to the horizontal.

Preferably, said boom extends at an angle in the range 40 to 50 degrees to the horizontal.

Preferably, said boom extends at an angle of substantially 45 degrees to the horizontal.

Preferably, said hull is provided with a bowsprit and a forward end of said boom is located on said bowsprit, forward of the bow of the hull.

Preferably, such a sailing boat includes means for adjusting the position of said forward end of said boom on said bowsprit.

Preferably, said boom has a cross-section that tapers towards its upper end.

Preferably, said boom has a degree of flexibility that increases towards its upper end.

Preferably, said mast is located at a distance from the bow of the hull that is in the range 25 to 40 percent of the length of the hull.

Preferably, said mast is located at a distance from the bow of the hull that is substantially one-third of the length of the hull.

Preferably, said sail has a lower, aft corner that is tethered substantially above the centre line of the hull.

A sailing boat as above preferably includes means for adjusting the position of said aft corner up to 100mm either side of the centre line of the hull.

Preferably, said sail extends from a position forward of the bow of the hull to a position substantially above the stern of the hull.

Preferably, said sail is of substantially triangular shape.

Preferably, the dimensions and locations of said mast, boom and sail are such that, when deployed, the sail cannot touch the mast.

In another aspect, the present invention provides a sailing boat comprising:

a hull;

a mast mounted directly or indirectly on the hull and comprising two opposing side portions that are joined at the top, each said side portion extending upwardly and outwardly from a respective side of the hull;

a boom supported on the mast with the boom extending upwardly from a lower, fore position forward of the mast to a higher, aft position aft of the mast; and

a sail depending from the boom for deployment within the loop of the mast.

Preferably, each said side portion of the mast extends outwardly of the hull for a distance equal to at least 20, 30, 40, 50 or 60 per cent of the extreme beam of the hull.

Such a sailing boat may also be in accordance with any of the preceding aspects of the invention.

The invention extends to a sailing rig for a sailing boat according to any of the preceding aspects of the invention, the rig comprising said mast, sail and boom.

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 shows a sailing boat in side elevation; and

Figure 2 is a front view of the sailing boat.

The illustrated sailing boat has a single hull 7 with a keel 8, bow 11, stern 12 and rudder 15. A bowsprit 4 projects forwardly of the bow 11.

A mast 1 is secured directly or indirectly to the hull 7 by a tabernacle 6. The mast 1 is in the form of a closed loop that extends abeam of the hull 7 and, as may be seen in Figure 2, the mast 1 is generally ovoid - that is, egg-shaped. In this respect, the mast 1 has a broad base and, as each side of the loop extends upwardly, it extends outwardly, beyond the beam of the hull 7 and then upwardly up to an apex where a joining member 9 is provided. As illustrated, the mast 1 is formed of a single, closed, hollow member having ends that are connected at right angles by the joining member 9 at the apex. Fore and aft stays 5 are connected between the sides of the mast 1 and the deck or hull 7, to secure the mast 1.

The tabernacle 6 comprises a central portion aligned with the centre line of the hull 6 to receive a lower, central portion of the mast 1, and two side portions each at or adjacent a respective side of the hull 7, to receive a respective side portion of the mast 1.

A boom 2 is supported on the mast 1 and extends upwardly from a lower, fore position on the bowsprit 4 to a higher, aft position above the stem 12. A sail 3 of triangular form has its longer side attached to the boom 2 with its shorter sides depending from the boom 2. The free corner of the sail 3 - that is, the "clew" 13 is tethered by ropes or sheets 14 to points on the sides of the hull 7 or deck, such that the clew 13 is positioned substantially above the centre line of the hull 7. Such a sail 3 of triangular shape is often known as a "lateen" sail.

The boom 2 has fore and aft parts 21, 22 that are respectively fore and aft of the mast 1. The aft part of the boon 2 tapers in cross-section and increases in flexibility towards the aft end of the hull 7. As seen in Figure 1, this flexibility allows the aft part 22 of the boom 2 to assume a curved shape when

the sail 3 is deployed. The flexibility of the aft part 22 of the boom 2 also assists in absorbing any shock effects that may be encountered by the sail 3 from a sudden change in wind – for example, as in jibing.

The dimensions and locations of the mast 1, boom 2 and sail 3 are such that, when deployed, the sail 3 cannot touch the mast 1. This is where the ovoid shape of the mast 1 is particularly important.

It will be appreciated that the construction of the illustrated sailing boat 1 is particularly simple. It has just a single sail 3 that can be fully deployed within the closed loop shape of the mast 1 without fouling the mast 1. This allows the sail 3 full and unrestricted deployment, results in exceptionally good sailing and provides swift and easy tacking. The position of the clew 13 may be sheeted to port or starboard, although a very small range of adjustment may be required – for example, up to 100 millimetres to port or starboard of the centre line of the hull 7. A wider range of adjustment may be provided if desired.

If made of a hollow, watertight construction, the mast 1 can provide buoyancy, and this may be particularly advantageous with small sailing vessels which operate dagger boards, to prevent total capsize. In this respect, the hollow mast may have a watertight void within, or the void may be filled with a foam or other buoyant material to assist buoyancy. The mast 1 may be of any suitable material - for example, metal, plastics or wood.

Preferably, the tabernacle 6 affords pivotal movement of the mast 1, so that the mast 1 may be rotated through 90 degrees when not in use. This facilitates manoeuvring and docking of the craft in confined locations. It is not essential for the mast to be rotatable through a full right angle. It may be sufficient for the mast 1 to be rotatable through a smaller angle, such that it

extends more fore and aft of the hull than abeam of the hull – or at least remains within the external dimensions of the hull. To this end, the central portion of the tabernacle 6 may pivot itself, and the side portions of the tabernacle 6 may hold the side portions of the mast 1 releasably. Further, releasable securing means may be provided for holding the mast 1 in its stowed position.

The mast 1 may be formed of a plurality of closed, hollow members that are connected together, rather than a single member. As illustrated, the joining member 9 can join upper ends of mast members. The tabernacle 6 may serve to join lower ends of mast members.

The maximum beam of the mast 1 may be approximately 75% of the height of the mast. The maximum beam may lie in the range of 60 to 90, 65 to 85 or 70 to 80 per cent of the height of the mast. A suitable fixing means is provided for securing the boom 2 to the mast 1, at or adjacent the top centre point of the mast 1. Means may be provided for adjusting the fore and aft stays 5, thereby to adjust the rake of the mast 1.

Adjustment means may be provided for adjusting the position of the forward end of the boom 2 on the bowsprit 4. Preferably, the boom 2 extends at an angle of approximately 45 degrees to the horizontal. The boom may extend at an angle in the range 35 to 55 degrees or 40 to 50 degrees to the horizontal.

The mast 1 is located at a distance from the bow 11 that is approximately one-third of the length of the hull 7. The mast 1 may be located at a distance from the bow 11 that is in the range 25 to 40 percent of the length of the hull 7. As may be seen in Figure 1, the sail 3 extends from a position forward of the bow 11 to a position approximately above the stern 12.

In addition to providing pivotal movement of the mast 1 about an upright axis for stowage, limited pivotal movement may also be afforded when under sail, in order to rotate the mast, boom and sail slightly and thereby gain extra advantage from the wind. The limited pivotal movement may be, for example, up to 5 or 10 degrees (although further movement may be possible), and this may be particularly useful on a long tack. Additional, releasable, securing members may be provided for securing the side portions of the mast 1 when so rotated, or the side portions of the tabernacle 6 may be movable with pivotal movement of the mast 1.

Although a sail 3 of triangular shape is preferred and illustrated, alternative sails of different shapes may be employed.

Although the illustrated boat has just a single sailing rig comprising mast 1, boom 2 and sail 3, larger boats may carry multiple rigs of similar configuration – for example, one behind the other.

Although the illustrated boat has a single hull, one or more sailing rig as illustrated may be used on multi-hull boats – for example, a catamaran or trimaran.

It is to be noted that the mast 1 provides two opposing side portions that are joined at the top, each side portion extending upwardly and outwardly from a respective side of the hull 7. It is this configuration that allows excellent deployment of the sail 3 within the mast, and to this end, each side portion of the mast may extend outwardly of the hull for a distance equal to at least 20, 30, 40 50 or 60 per cent of the extreme beam of the hull 7.

It is convenient for both such side portions of the mast 1 to be mounted on the tabernacle 6 such that the mast 1 may be placed conveniently in a stowed position, as described above. However, each such mast portion may be independently mounted at a respective side of the sailing boat, and each independently moveable to a respective stowed position.

In this specification, the verb "comprise" has its normal dictionary meaning, to denote non-exclusive inclusion. That is, use of the word "comprise" (or any of its derivatives) to include one feature or more, does not exclude the possibility of also including further features.

The reader's attention is directed to all and any priority documents identified in connection with this application and to all and any papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS

1. A sailing boat comprising:

a hull;

a mast in the form of a closed loop that extends abeam of the hull;

a tabernacle that mounts the mast directly or indirectly on the hull;

a boom supported on the mast with the boom extending upwardly from a lower, fore position forward of the mast to a higher, aft position aft of the mast; and

a sail depending from the boom for deployment within the closed loop of the mast.

2. A sailing boat according to claim 1, wherein said hull is a single hull.

3. A sailing boat according to claim 1 or 2, wherein said loop is elliptical.

4. A sailing boat according to claim 1 or 2, wherein said loop is ovoid, with an apex at the top of the mast.

5. A sailing boat according to any of the preceding claims, wherein the maximum beam of said mast is in the range 60 to 90 percent of its height.

6. A sailing boat according to claim 5, wherein the maximum beam of said mast is in the range 65 to 85 percent of its height.

7. A sailing boat according to claim 6, wherein the maximum beam of said mast is in the range 70 to 80 percent of its height.

8. A sailing boat according to claim 7, wherein the maximum beam of said mast is substantially 75 percent of its height.

9. A sailing boat according to any of the preceding claims, wherein said mast is formed of at least one closed hollow member.

10. A sailing boat according to claim 9, wherein said mast is formed of a single closed hollow member having ends that are connected at the top of the mast.

11. A sailing boat according to claim 9, wherein said mast is formed of a plurality of closed hollow members having ends that are connected at the top and the bottom of the mast.

12. A sailing boat according to claim 11, wherein said tabernacle connects said ends of said closed hollow members at the bottom of the mast.

13. A sailing boat according to claim 9, 10, 11 or 12, wherein said hollow member is at least partially filled with foam or other buoyancy-assisting material.

14. A sailing boat according to any of the preceding claims, wherein said tabernacle affords movement of the mast between an operative position in which it extends abeam of the hull and a stowed position in which it extends more fore and aft of the hull.

15. A sailing boat according to claim 14, wherein the mast when in said stowed position extends substantially fore and aft of the hull.

16. A sailing boat according to claim 14 or 15, wherein said tabernacle affords pivoting movement of the mast between said operative position and said stowed position.

17. A sailing boat according to any of the preceding claims, wherein said boom is connected to the mast at or adjacent a top centre point of the mast.

18. A sailing boat according to any of the preceding claims, including stays for supporting opposite sides of the mast.

19. A sailing boat according to claim 18, including stay adjustment means for adjusting said stays and thereby the rake of the mast.

20. A sailing boat according to any of the preceding claims, wherein said boom extends at an angle in the range 35 to 55 degrees to the horizontal.

21. A sailing boat according to claim 20, wherein said boom extends at an angle in the range 40 to 50 degrees to the horizontal.

22. A sailing boat according to claim 21, wherein said boom extends at an angle of substantially 45 degrees to the horizontal.

23. A sailing boat according to any of the preceding claims, wherein said hull is provided with a bowsprit and a forward end of said boom is located on said bowsprit, forward of the bow of the hull.

24. A sailing boat according to claim 23, including means for adjusting the position of said forward end of said boom on said bowsprit.

25. A sailing boat according to any of the preceding claims, wherein said boom has a cross-section that tapers towards its upper end.

26. A sailing boat according to any of the preceding claims, wherein said boom has a degree of flexibility that increases towards its upper end.

27. A sailing boat according to any of the preceding claims, wherein said mast is located at a distance from the bow of the hull that is in the range 25 to 40 percent of the length of the hull.

28. A sailing boat according to claim 27, wherein said mast is located at a distance from the bow of the hull that is substantially one-third of the length of the hull.

29. A sailing boat according to any of the preceding claims, wherein said sail has a lower, aft corner that is tethered substantially above the centre line of the hull.

30. A sailing boat according to claim 29, including means for adjusting the position of said aft corner up to 100mm either side of the centre line of the hull.

31. A sailing boat according to any of the preceding claims, wherein said sail extends from a position forward of the bow of the hull to a position substantially above the stern of the hull.

32. A sailing boat according to any of the preceding claims, wherein said sail is of substantially triangular shape.

33. A sailing boat according to any of the preceding claims, wherein the dimensions and locations of said mast, boom and sail are such that, when deployed, the sail cannot touch the mast.

34. A sailing boat comprising:

a hull;

a mast mounted directly or indirectly on the hull and comprising two opposing side portions that are joined at the top, each said side portion extending upwardly and outwardly from a respective side of the hull;

a boom supported on the mast with the boom extending upwardly from a lower, fore position forward of the mast to a higher, aft position aft of the mast; and

a sail depending from the boom for deployment within the loop of the mast.

35. A sailing boat according to claim 34, wherein each said side portion of the mast extends outwardly of the hull for a distance equal to at least 20 per cent of the extreme beam of the hull.

36. A sailing boat according to claim 34, wherein each said side portion of the mast extends outwardly of the hull for a distance equal to at least 30 per cent of the extreme beam of the hull.

37. A sailing boat according to claim 34, wherein each said side portion of the mast extends outwardly of the hull for a distance equal to at least 40 per cent of the extreme beam of the hull.

38. A sailing boat according to claim 34, wherein each said side portion of the mast extends outwardly of the hull for a distance equal to at least 50 per cent of the extreme beam of the hull.

39. A sailing boat according to claim 34, wherein each said side portion of the mast extends outwardly of the hull for a distance equal to at least 60 per cent of the extreme beam of the hull.

40. A sailing boat according to any of claims 34 to 39 and also according to any of claims 1 to 33.

41. A sailing boat substantially as hereinbefore described with reference to the accompanying drawings.

42. A sailing rig for a sailing boat according to any of the preceding claims, the rig comprising said mast, sail and boom.

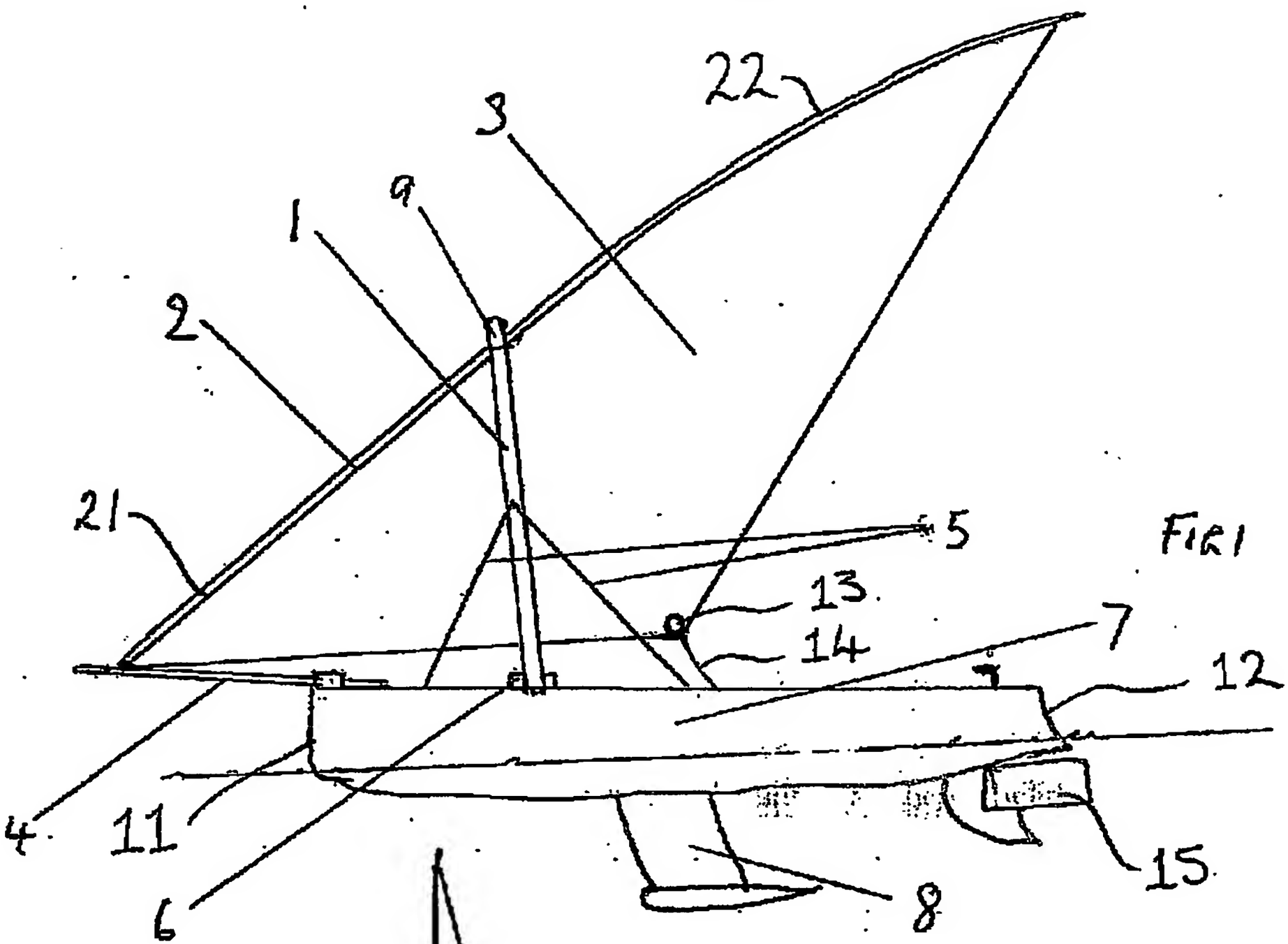

FIG 1

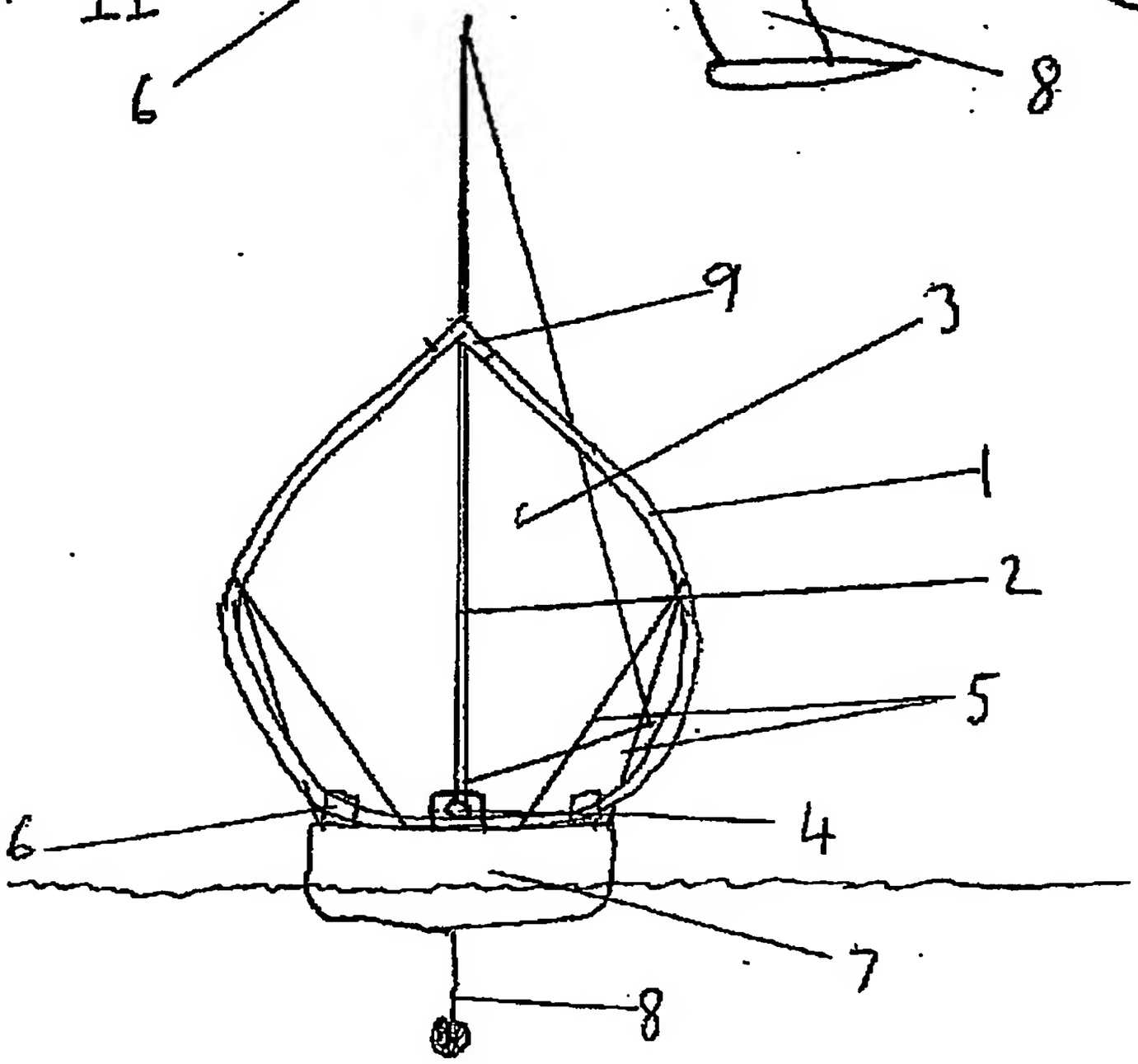

FIG 2.